Some Interactions of S with Cd in Si

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The work is devoted to the study of some peculiarities of inter-admixture interactions of S with a fast diffusible admixture of Cd in silicon for the elaboration of high effective methods of heterization of the above mentioned components throughout the silicon volume.

The investigated samples were obtained by high-temperature diffusion of S and Cd from the gas phase on p-Si<B> at silicon grade with specific resistance of 10 ohm*sm.

The results of the investigation showed that, irrespective of the alloy temperature of silicon with Cd, the parameters of Si<B,Cd,S> turned out to be equal to the parameters of the control samples of Si<B,S>. These results testified the absence of interaction between S and Cd at 1523 K, and they were subjected to the subsequent roasting in the temperature range 673-1273 K. The results of studies showed that at roasting temperatures $T \geq 993$ K, admixture atoms of S and Cd begin to form electrically combined complexes and at the long duration of roasting of Si<B,S,Cd> it assumed the parameters of the original substances, although at these roasting temperatures the control sample parameters of Si<B,S> have practically not changed.

It was established that S in Si forms electrically neutral and chemically combined complexes with Cd. The most effective complex-formation temperature is T=993 K.